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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/633145
Filing Date: September 22, 2004
Appellant(s): KEN L. CHANG ET AL.

Joshua C. Harrison
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed February 6, 2007 appealing from the Office action mailed May 16, 2006.

I. Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

II. Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

III. Status of Claims

The statement of the status of the claims contained in the brief is correct.

Claims 1-9 are pending in the present application. Claims 1-9 are the subject of this appeal. Claims 1-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Budde (USPub 2002/0163763).

IV. Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

V. Summary of Claimed Subject Matter

The summary of invention contained in the brief is correct.

VI. Grounds of Rejection to be Reviewed Upon Appeal

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

VII. Claims Appendix

The copy of the appealed claims contained in the appendix to the brief is correct.

VIII. Evidence Relied Upon

Budde (USPub 2002/0163763)

XI. Grounds of Rejection

Claims 1-9 are rejected under 35 U.S.C. § 102(e) as being anticipated by Budde (USPub 2002/0163763).

Regarding Claims 1-9, Budde shows (Figs. 1-4), a disk drive comprising a disk drive base (102), a spindle (109) motor attached to the disk drive base, a disk (106) supported on the spindle motor, a head stack (116) assembly rotatably coupled to the disk drive base, the head stack assembly including a stamped actuator arm [0048], a head gimbal assembly [0032] attached to the stamped actuator arm, the head gimbal assembly including a base plate ([0029], 202), and a trace suspension flex [0029, "flex circuit"] having a metal base layer (e.g., the flex circuit of Budde resides on the stainless steel suspension and load beam, which of course, can also be construed as the metal base layer upon which the flex circuit is directly supported) and a plurality of conductors supported by the metal base layer (it is inherent that the circuit would have a plurality of metal conductors), the stamped actuator arm including an actuator arm side surface extending longitudinally along the stamped actuator arm, and a plurality of longitudinally spaced apart stamped protrusions (208,210,212) extending parallel to a top surface, at least one having a thickness that is substantially less than that of the actuator arm (Figs. 2 and 3 show that where the tabs are located (202) is thinner than the rest of the actuator

arm), protrusions being in contact with the trace suspension flex [0029], each stamped protrusion extending from the actuator arm side surface in a direction generally perpendicular to the pivot axis, a plurality of stamped protrusions being an integer in a range between 2 to 3, wherein the integer is 2 or 3, wherein the stamped protrusions are generally equally spaced apart longitudinally along the actuator arm side surface, parallel to the top surface.

X. Response to Arguments

A. The Appellant argues: *All claim rejections should be reversed because the stamped suspension disclosed by Budde is not the same component as the actuator arm.*

Regarding Claims 1-9, the Examiner maintains that Budde shows a unitary suspension (200) that is stamped [0048] and has a base plate portion (202) which is directly and integrally fixed to the actuator arm [0029]. The arrangement of parts shows that the base plate portion is rigidly and immovably attached to the actuator arm, thus making it part of the actuator arm. Budde clearly shows protrusions (208,210,212) on the base plate which are part of the actuator arm. It is noted that the actuator arm (114) - FIG. 1 - to which base plate portion is integrally, immovably, rigidly and securely affixed via base plate, suspends the cantilevered load beam portion (206) of suspension (200) at spring bend (204), which is where the actuator arm and base plate portion (202) terminate in tandem - cf. FIGS. 3 and 1 in particular. Thus actuator arm, *in toto*, is a composite of the base plate portion (202) and the arm portion (114), which function to fixedly support the spring biased (via spring bend (204) - see FIG. 3) cantilevered load beam (206) and head slider (110) against the disk surface. During operation of the disk drive, the head slider lifts off the disk by aerodynamic forces generated by the disk(s) spinning, to reach an

equilibrium with the bias force of the spring region of the lifted and movable load beam (206), while the base plate portion (202) and arm portion remain rigidly immovable.

The Examiner further notes that the claimed invention is not limited to a single unitary stamped arm. Moreover, the Examiner notes that the term "stamped" certainly does not require an item to be of a single unitary structure. If two pieces are separately formed, with one of them being stamped, and then subsequently joined together, then the resultant product is a single unitary piece that is stamped.

Moreover, the term "stamped" is indeed a product by process limitation in a claimed product, and such product-by-process limitations are to be given weight in accordance with controlling legal authority, *In re Hirao*, 190 USPQ 15 at 17(footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessman*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); *In re Marosi et al*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964, all of which make it clear that it is the patentability of the final structure of the product "gleaned" from the process limitations or steps, which must be determined in a "product by process" claim, and not the patentability of the process limitations. Moreover, an old or obvious product produced by a new method is not a patentable product, whether claimed in "product by process" claims or not. Note that the applicant has the burden of proof in such cases, as the above case law makes clear.

B. The Appellant argues: ***All claim rejections should be reversed because the stamped suspension disclosed by Budde is not a part or portion of the "'actuator arm" as both Budde and the pending application use that term.***

Regarding Claims 1-9, the Examiner maintains that Budde shows a unitary suspension (200) that is stamped [0048] and has a base plate portion (202) which is directly and integrally fixed to the actuator arm [0029]. The arrangement of parts shows that the base plate portion is rigidly and immovably attached to the actuator arm, thus making it part of the actuator arm. Budde clearly shows protrusions (208,210,212) on the base plate which is part of the actuator arm. Moreover, the claims do not in any way limit the arm to a single unitary piece of material, and there is ample support for a reasonable interpretation of the term "actuator arm" as being formed of a composite (e.g., see extrinsic evidence such as US Patent Nos. 5,978,178; 6,446,325; 6,087,620, etc. which disclose "composite" actuator arms and are cited merely to show that the term "actuator arm" is ***not*** a term of art which connotates, defines or limits an actuator arm to a single unitary piece of material).

C. The Appellant argues: ***All claim rejections should be reversed because the examiner's interpretation of Budde requires the base plate to be excluded from the head gimbal assembly (HGA).***

The Examiner has not in any way excluded the base plate from the head gimbal assembly (HGA). The structure including a suspension, electrical interconnect, and read/write head is commonly referred to by one of ordinary skill in the art as a Head Gimbal Assembly, or HGA. Clearly, base plate (202) is part of the suspension (200). It is not excluded from being part of the HGA just because it is integrated into the actuator arm.

D. The Appellant argues: ***All claim rejections should be reversed because Budde does not disclose a "trace suspension flex".***

The Examiner maintains that Budde clearly shows [0038] a ***"trace suspension flex"*** calling out the ***flex circuit*** weaving between the electrical interconnect tabs. One of ordinary skill in the art would understand that the terms describe the same structure and function, being a flexible set of metal conductors that route an electrical signal to the read/write head.

E. The Appellant argues: ***All claim rejections should be reversed because Budde does not disclose a trace suspension flex that has a "metal base layer and a plurality of conductors supported by the metal base layer".***

The Examiner maintains that Budde clearly shows [0038] a ***"trace suspension flex"*** calling out the ***flex circuit*** weaving between the electrical interconnect tabs. One of ordinary skill in the art would understand that the terms describe the same structure and function, being a flexible set of metal conductors that route an electrical signal to the read/write head. Additionally, one of ordinary skill in the art would understand that a metal base layer with a plurality of conductors is inherent to the structure and function of a flex circuit as is known in the art. Moreover, the flex circuit of Budde resides on the stainless steel suspension and load beam, which of course, can also be construed as the metal base layer upon which the flex circuit is directly supported.

F. The Appellant argues: ***The rejection of claim 9 should also be reversed because Budde does not disclose or suggest a protrusion thickness that is less than an actuator arm thickness.***

The Examiner maintains that Budde clearly shows two thicknesses. The first being the thickness of the suspension where the protrusions are of equal thickness. The second thickness being where the actuator arm and base plate are affixed forming the complete actuator arm.

Therefore, it follows that the thickness of the protrusions must be less than the thickness of the actuator arm.

XI. Related Proceedings Appendix

No decision rendered by a Court or the Board is identified in the Related Appeals and Interferences section.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully Submitted,

Mark S. Blouin
Art Unit 2627

MSB
August 8, 2007

Conferee

/William R. Korzuch/
William Korzuch

/William Klimowicz/
William Klimowicz